Operating & Service Manual
90074-IM
09/06/2011

Airetool®

1550-900
Airetrol Rolling Motor

For additional product information visit our website at http://www.apextoolgroup.com

Tool Specifications	
Model: 1550-900 (8404290)	
Free Speed	756 rpm
Maximum Torque	30.7 Ft. lbs. (41.6 Nm)
Minimum Torque	4.7 Ft. lbs. (6.4 Nm)
Weight	27 lbs. (12.25 Kg)
Overall Length	18" (457mm)
Side to Center Distance	1-15/16" (50mm)
Recommended Hose Diameter (max. 6' long)	3/4" (13mm)
Air Consumption	70 CFM
Square Drive (Male)	1/2"
Quick Change Chuck (standard)	3/8-1/2"
Quick Change Chuck (optional)	3/4-1"
Tube Capacities *	1-1/2" (38.1mm)

* Note: Varies depending on tube material, gauge, and tube sheet thickness.

Language Version:

This Parts Manual is the ***"Original Instructions"*** intended for all persons who will use or repair these tools.

Product Identification:

Refer to the "Model Nomenclature" page in this document.

Noise and Vibration:

Refer to documents CE-1015DC and CE-1015TD.

General Description:

Air powered right angle portable nutrunners equipped with an adjustable clutch.

Intended Use:

These air assembly tools are intended for tightening of threaded joints or running down fasteners. Use only for their designated purpose. Do not use as a hammer, lever or other improper usage that can cause tool damage and operator injury.

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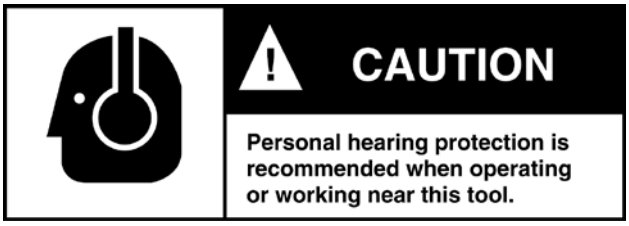
Important: For your safety and the safety of others, read, understand and comply with all safety recommendations and product operating instructions.

ALWAYS WEAR PROTECTIVE EQUIPMENT:

Eye and Face Protection:

For additional information on eye and face protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.133, Eye and Face Protection, and American National Standards Institute, ANSI A87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 130 Broadway, New York, NY 10018.

Hearing Protection:



Hearing protection is required in high noise areas, 85 dBa or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures, can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure, and American National Standards Institute, ANSI S12.6 Hearing Protectors.

CAUTION!

Follow good machine shop practices. Rotating shafts and moving components can entangle and enwrap, and can result in serious injuries. Never wear long hair, loose fitting clothes, gloves, ties or jewelry when working with or near any power tool with an exposed rotating shaft or spindle.

CAUTION!

When using right angle Airetrols with lever type throttles, be sure the throttle is positioned relative to the angle head so that the throttle will not become wedged against an adjacent object in the “ON” position due to the torque reaction. The angle head may be repositioned with respect to the lever to accommodate proper location for the application. If the tool is to be reversed, locate the throttle lever in a neutral position that will prevent entrapment. Refer to the operating instructions for additional information.

CAUTION!

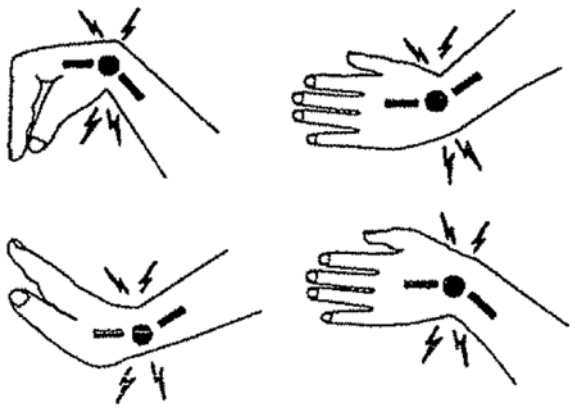
Tools with clutches can stall rather than shut-off if they are adjusted over the maximum power output of the tool, or if there is a drop in air pressure. The operator must then resist the stall torque until the throttle is released.

Higher torque Airetrols, inline and right angle, are supplied with a torque reaction bar designed to work with the torque of the tool it is specified for. These bars can be braced against the work or other suitable points to absorb and relieve the operator of the torque reaction transmitted by the tool. Tool balance arms are also available to absorb the torque reaction of the tool while balancing the weight of the tool for improved ergonomic applications.

Ergonomics:

Some individuals are susceptible to disorders of the hands and arms when exposed to tasks which involve highly repetitive motions and/or vibrations. Those individuals pre-disposed to vascular or circulatory problems may be particularly susceptible. Cumulative trauma disorders such as carpal tunnel syndrome and tendonitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms. These disorders develop gradually over periods of weeks, months, and years.

Tasks should be performed in such a manner that the wrists are maintained in a neutral position which is not flexed, hyper extended, or turned side to side.



Stressful postures should be avoided and can be controlled through tool selection and work environment.

Any user suffering from prolonged symptoms of tingling, numbness, blanching of the fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult with a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design, it may be necessary for the employer to take steps to prevent further occurrences. These steps might include, but are not limited to, repositioning the work piece or redesigning the workstation, reassigning workers to other jobs, rotating jobs, altering work pace, and/or changing the type of tool used so as to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following recommendations will help reduce or moderate the effects of repetitive work motions:

- Use a minimum of hand grip force consistent with proper control and safe operation
- Keep wrists as straight as possible
- Keep body and hands warm and dry
- Avoid anything that inhibits blood circulation: smoking tobacco, cold temperatures, certain drugs, etc.
- Avoid highly repetitive movements of the hands and wrists, and continuous vibration exposure

CAUTION!

Before the tool is connected to the air supply, check the throttle for proper operation (throttle moves freely and returns to the “OFF” position when released). Before removing a tool from service or changing sockets, disconnect from the air supply.

Any use of this tool other than it’s intended purpose could cause damage to the tool or pose a risk to the operator.

Airetrol model 1550-900 was designed to roll up to 2” O.D. steel tubes. This capacity will vary some depending upon tube wall thickness and tube sheet thickness. The Airetrol should be attached to an air line with a minimum inside diameter of 1/2” and a maximum length of 25’. If the maximum length is exceeded, the inside diameter of the hose should be increased to 3/4” minimum. An inline lubricator should be installed in the air line and set with the oil rate adjusted at approximately 6 to 8 drops per minute.

This product is designed to operate on a minimum of 90 psig (6.2 bar) and a maximum of 125 psig (8.6 bar) air pressure. If the tool is properly sized and applied, higher air pressure is not necessary. Excessive air pressure increases the load and stress on tool parts, mandrels, rolls and cages and may result in premature wear or breakage. The tool will operate on less air pressure, but the RPM and the maximum developed torque of the motor will be proportionally reduced by the loss of pressure. The tool is equipped with a safety roll throttle, which will neutralize or shut off the air supply when the handle is released.

With the roll throttle held on the right side of the Airetrol, turn the throttle in the forward or clockwise direction. The tool will run in the forward direction. Rotate the grip in the counterclockwise direction and the tool will reverse to back the expander out of the tube.

NOTE: ANYTIME THE MOTOR WILL NOT RUN IN THE FORWARD DIRECTION, ROTATE THE THROTTLE HANDLE TO THE FULL COUNTERCLOCKWISE POSITION. THIS WILL RESET THE TRIP AND ALLOW THE MOTOR TO RUN IN THE FORWARD DIRECTION.

Select the proper drive chuck that will accept the Airetool expander being used. The torque adjusting dial on the front of the machine is divided “0 to 30”. These particular divisions are for reference only and to indicate the up and down adjustment, depending upon the requirement needed to satisfactorily roll the tube. Elsewhere in this manual is the recommended method for determining the proper amount of expansion for tubes. We recommend starting at a low torque setting of the machine, rolling a joint and checking the inside diameter to the calculated inside diameter. If the rolled I.D. is not large enough, the torque should be increased, and the tube should be rolled again. When the tube is rolled satisfactorily, we recommend rolling the second tube for which the finished I.D. has been calculated, to check the setting. When the required I.D. is reached and maintained, the entire tube bundle can be rolled at this setting.

NOTE: THE FIRST TEST TUBES THAT WERE NOT ROLLED ENOUGH IN THE FIRST TEST ROLLS SHOULD BE ROLLED AGAIN TO THE SAME TORQUE SETTING.

As with any power tool, precautions should be observed during operation.

After extensive use, it may be necessary to adjust or service the tool to maintain the highest degree of efficiency.

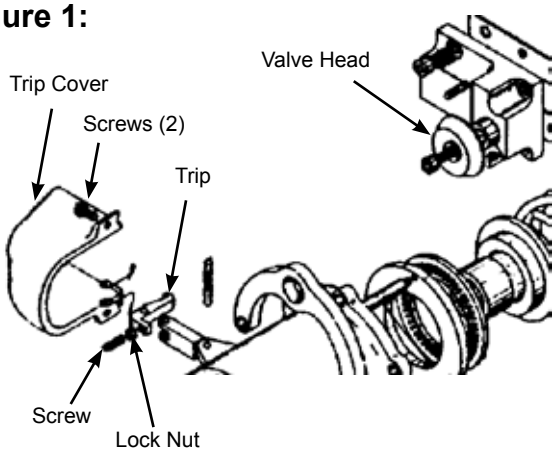
⚠ WARNING

Disconnect the air supply line from the tool before disassembling.

Adjusting the Trip:

If the tool fails to shut off properly, check the trip adjustment.

Figure 1:



Remove the two screws to remove the trip cover, see Figure 1. The trip engages the valve head. There should be approximately 5/64" clearance between the outside diameter of the valve head and the notch of the trip when in the proper operating position. If adjustment is necessary, use a 5/64" (.078") diameter drill as a gauge.

If the trip is adjusted to deeply, loosen the lock nut and turn the screw until the 5/64" diameter drill just touches both the valve head and the trip. Tighten the lock nut. *Caution: Do not overtighten the lock nut. This could break the small end of the trip arm.*

Torque Section:

Refer to Illustrations "B" & "C"

Remove the six cap screws securing the cam case to the motor case and remove the torque section.

With the cam case in a vertical position, secure the output end of the spindle in a smooth jawed vise.

Remove the large retaining ring to remove the cam and ball retainers. Now remove the regulating spring, spring guide, pressure pad and needle bearing assembly.

Remove the retaining ring from the output end of the spindle. The spindle can now be removed for inspection and replacement, if necessary. A new spindle is necessary only if the faces of the three splined grooves are brinelled severely by the balls that operate in the spline.

Install the cleaned or new spindle. Place the pressure pad with the pressure pins down into the cam case. Install the needle thrust bearing along with the spring guide. Place the regulating spring over the spring guide, making sure the spring is down over the pilot diameter.

Install the operating cam over the spindle, allowing it to rest on the stop collar. In each of the three splined grooves install one (1) guide spring and five (5) 3/16" diameter balls. *Note: These are precision balls and only Airetool replacement parts should be used.*

After installing the balls, install the inner and outer ball retainers on the cam. Place some grease on the three incline faces of the operating cam and install two (2) 1/4" diameter balls on each incline. The grease will hold the balls in position, allowing proper installation of the drive cam. After the drive cam has been installed, replace the snap ring to secure the assembly.

Motor Section:

Refer to Illustrations "A" & "B"

Remove the ring gear, clean and re-grease the gears.

Remove the four (4) cap screws securing the end cap to the motor case. Grasp the cylinder liner and remove the motor assembly from the motor case.

Lightly tap the geared portion of the spindle with a lead or brass hammer to remove the front bearing plate from the rotor assembly. Remove the cylinder to inspect the rotor blades. Under normal usage, new rotor blades should be installed every six months. If excessively worn, replace the front bearing support plate and rear rotor bearing. Adjust the cap screw so there is approximately .001" to .0015" clearance between the rotor and the end plate.

Clean and re-grease the planetary gear system with a semi-solid lubricant. Reinstall the motor housing, aligning the outside groove of the ring gear with the groove in the motor housing and install the pin.

Install the assembled motor into the motor housing, placing the dowel pin into the proper hole in the center of the motor housing. Replace the end cap and four (4) cap screws.

Having replaced the end cap, which properly aligns the cylinder and end plate, use an Allen wrench to evenly tighten the three set screws to the point of clamping pressure which allows the motor to operate freely.

Roll Throttle Valve:

Refer to Illustration "D"

To inspect the self closing throttle, remove the pin and grip. This will expose the self closing spring. If the spring is broken, replace it making sure one ear of the spring is hooked on the stop pin. Then, with pliers, grasp the other ear of the spring and place on the opposite side of the pin. This places the spring under torsion so it will return the throttle valve to the off position when released. Install the grip and pin.

Directional Valve:

Refer to Illustration "D"

To service the directional valve, remove the four (4) cap screws securing the handle assembly to the valve body. The valve can now be removed and inspected for wear or damage.

Oil all parts and reassemble. Make sure the handle gasket is in place before installing the handle.

After the motor has been serviced, the torque section can now be installed on the motor. Adjust the trip and replace the trip cover.

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Motor & Rear Handle Assembly

“A”

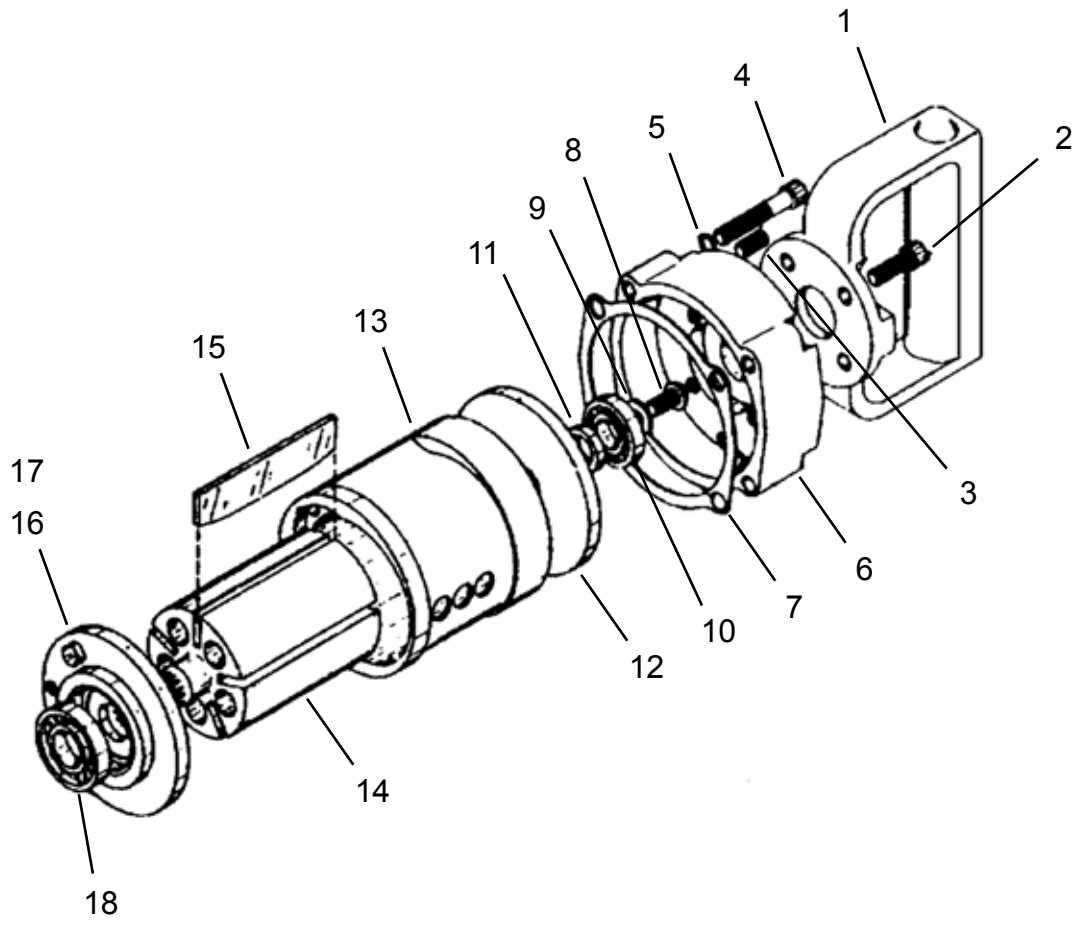

Illustration "A"

Ref	Number	#	X	EN Description
1	3231000	1		Rear Handle (1000 80)
2	8010023	4	4	Socket Head Cap Screw (1/4"-20 x 3/4")
3	8010039	3	6	Socket Head Set Screw (1/4"-20 x 1/2")
4	8010018	4	4	Socket Head Cap Screw (1/4"-20 x 1-1/2")
5	8010014	4	4	Lock Washer (1/4")
6	8565350	1		End Cap (1550 6)
7	8566647 (†)	1	3	Gasket (1550 63)
8	8010061	1	1	Button Head Screw (1/4"-28 x 1/2"
9	8004600	1	1	Washer (1/4")
10	3196200 (†)	1	2	Bearing (625 8)
11	8565470	1		Spacer (1550 18)
12	8565450	1		End Plate (1550 16)
13	8565440	1		Cylinder (1550 15) (includes one 8565690 Spring Pin)
14	8565360	1		Rotor (1550 7)
15	413248 (†)	5	15	Rotor Blade (700 13)
16	8565460	1		End Plate (1550 17)
17	8567204 (†)	1	3	Gasket (1550 17G) - Not Shown
18	8565680 (†)	1	2	Bearing (1550 39)

(#) Quantity
(X) Recommended Spare Parts
(†) Parts included in 8405588PT Airetool 1550-900 Service Kit

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Gearing Assembly

“B”

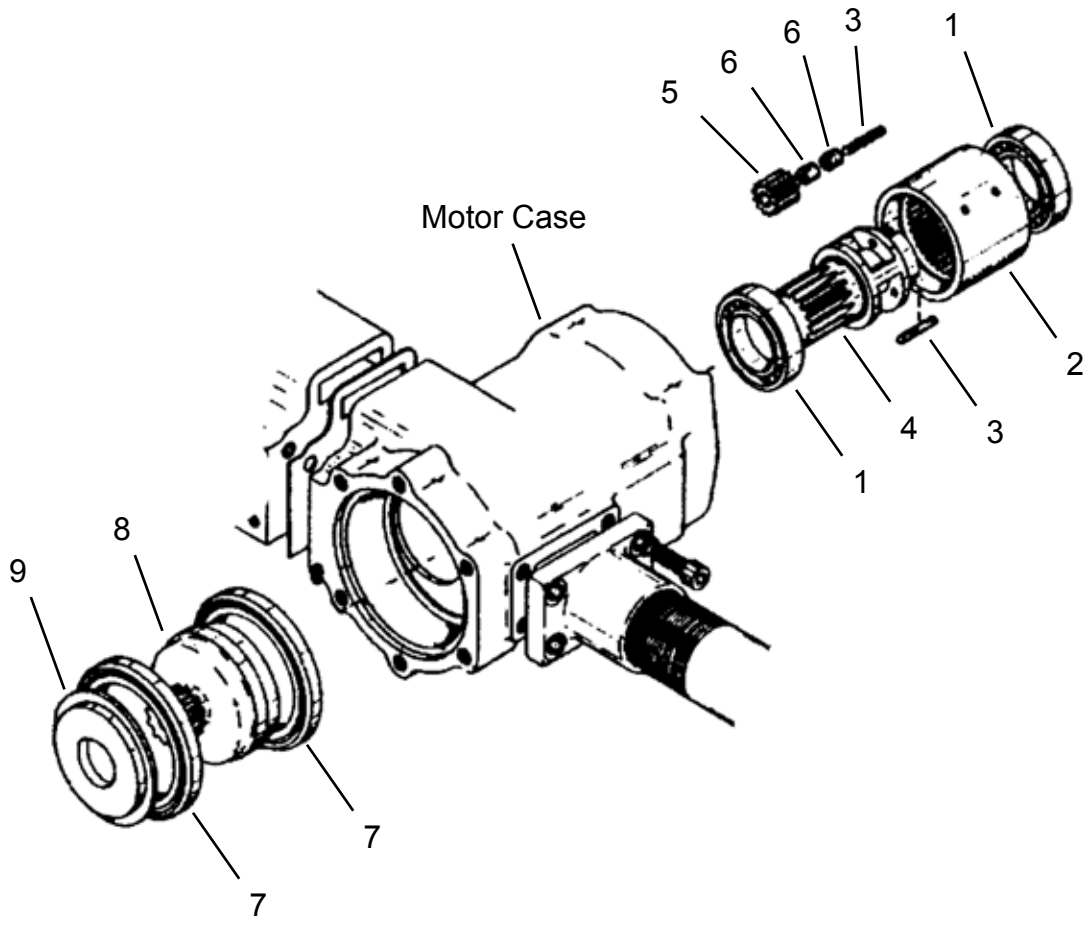

Illustration "B"

Ref	Number	#	X	EN Description
1	8565670	2	4	Bearing (1550 38)
2	8565580	1		Ring Gear (1550 29)
3	8565660 (†)	4	8	Pin (1550 37)
4	8565370	1		Gear Cage (1550 8)
5	8565560	3	6	Planet Gear (1550 27)
6	8567541 (†)	6	12	Bearing (400 16)
7	8565590	2	4	Bearing (1550 30)
8	8565570	1		Internal Gear (1550 28)
9	8565620	1		Spacer (1550 33)

(#) Quantity
(X) Recommended Spare Parts
(†) Parts included in 8405588PT Airetool 1550-900 Service Kit

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Cam & Spindle Assembly

“C”

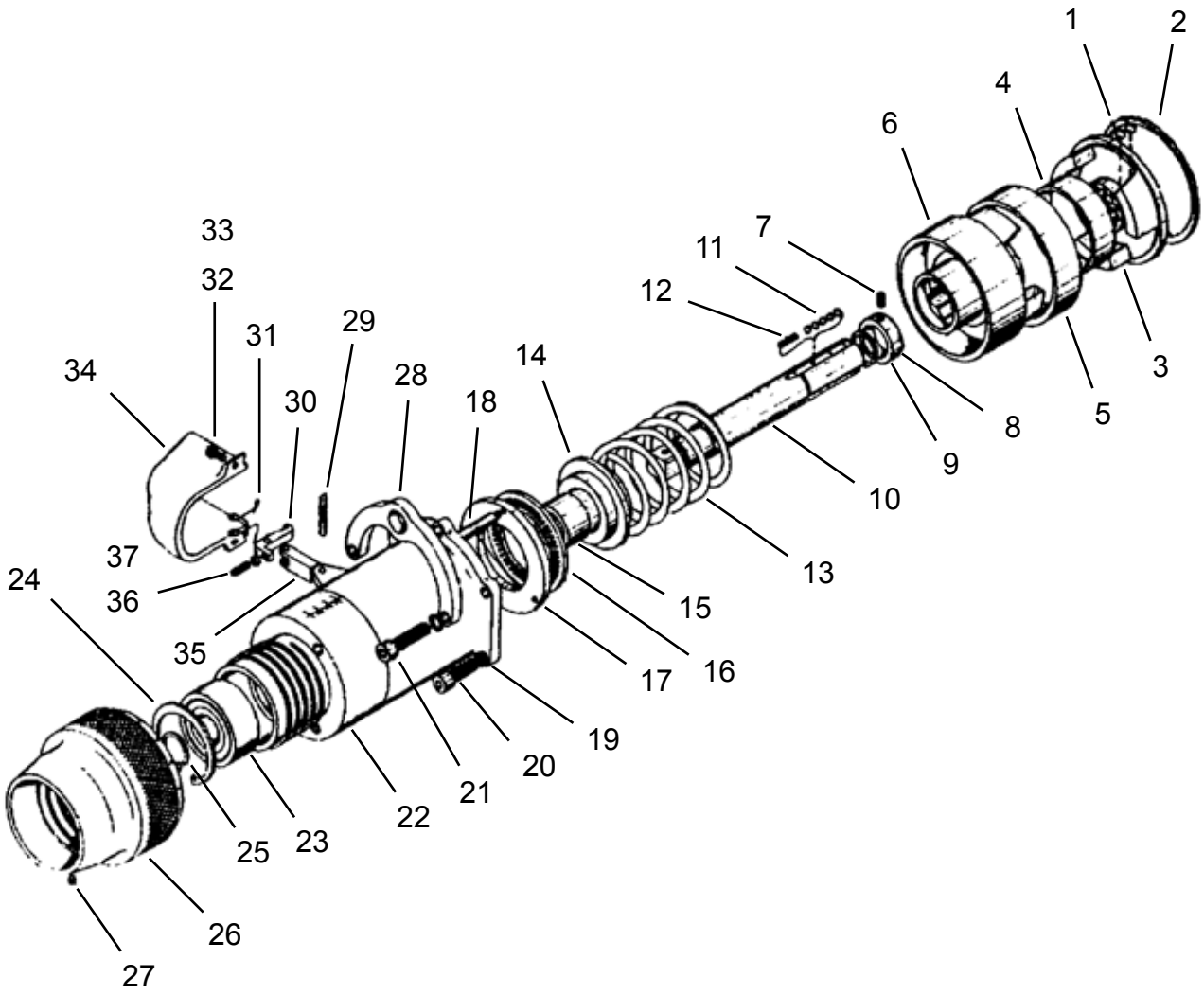

Illustration "C"

Ref	Number	#	X	EN Description
1	3227500	6	18	Steel Ball - 1/4" (1000 51)
2	3224200	1	2	Retaining Ring (1000 24)
3	8565640	1		Cam (1550 35)
4	3227600	1		Retainer (1000 52)
5	3227400	1		Ball Retainer (1000 50)
6	3227300	1		Operating Cam (1000 49)
7	8009800	1	3	Socket Head Set Screw (10-32 x 3/16")
8	3226900	1		Lock Ring (1000 45)
9	3232200 (†)	1	2	Snap Ring (1000 92)
10	3222000	1		Spindle (1000 4)
11	3227200 (†)	15	45	Steel Ball - 3/16"
12	3227100 (†)	3	9	Spring (1000 47)
13	3226700	1	3	Spring (1000 44 400HD)
14	3223100	1		Spring Guide (1000 12)
15	3223200 (†)	1	2	Bearing (1000 13)
16	3223300 (†)	1	2	Bearing (1000 14)
17	3223000	1		Pressure Pad (1000 11)
18	3222900	3	6	Pressure Pin (1000 10)
19	8010014	8	16	Lock Washer - 1/4"
20	8010023	6	6	Socket Head Cap Screw (1/4"-20 x 3/4")
21	8010059	2	2	Socket Head Cap Screw (1/4"-20 x 1")
22	3221700	1		Cam Case (1000 2)
23	3222500 (†)	1	2	Bearing (1000 7)
24	3222400	1	2	Retaining Ring (1000 6)
25	3222300 (†)	1	2	Lock Ring (1000 5)
26	3226300	1		Adjusting Nut (1000 43)
27	8010134 (†)	1	3	Nylon Tip Set Screw (8-32 x 3/16")
28	3228000	1		Motor Support (1000 56)
29	3226000	1	1	Dowel Pin (1000 37)
30	3223700	1		Trip (1000 18)
31	3223500	1	3	Spring (1000 16)
32	8010194	2	4	Button Head Cap Screw (6-32 x 1/2")
33	8010193	2	4	Lock Washer (# 6)
34	8565970	1		Trip Cover (1550 53)
35	3223600 (†)	1		Follower (1000 17)
36	8010058	1	2	Socket Head Set Screw (6-32 x 1/2")
37	8010079	1	2	Hex Nut (6-32)
38	8400700	1		Quick Change Chuck Assembly (1000 375) - not shown (includes Ref. 39-44)
39	3236100	1		Chuck Body (1000 375 1) - not shown
40	8566705	1		Chuck Sleeve (1000 375 2) - not shown
41	8501250	1	2	Spring (866 375 3) - not shown
42	3235400	1	2	Chrome Ball - 7/32" - not shown
43	8503500	1	1	Lock Ring (5108 81)
44	8010158	1	1	Split Pin (1/8" x 7/8")
Optional Chuck Assemblies				
--	8400800	1		Quick Change Chuck Assembly (1000 500)
--	8400900	1		3/4" Chuck Assembly (1000 750)
--	8404820	1		1" Chuck Assembly (1000 1000)

(#) Quantity
(X) Recommended Spare Parts
(†) Parts included in 8405588PT Airetool 1550-900 Service Kit

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Throttle & Valve Assembly

“D”

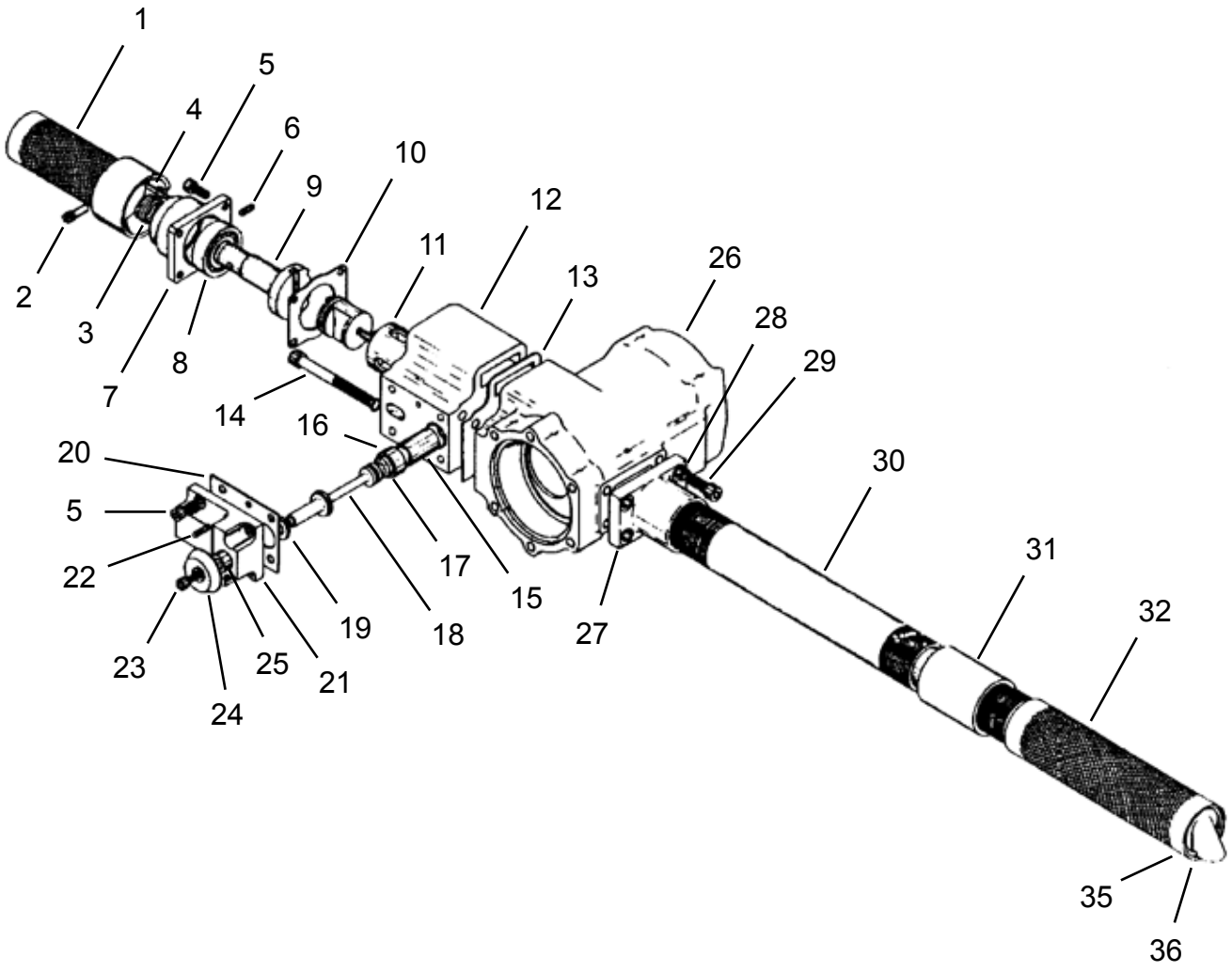

Illustration "D"

Ref	Number	#	X	EN Description
1	8566060	1		Throttle Grip (1000 39)
2	8566643 (†)	1	3	Pin (1000 39P)
3	8566061 (†)	1	3	Centering Spring (1000 38)
4	8010135	2	4	Split Pin (1/8" x 3/4")
5	8010038	8	8	Socket Head Cap Screw (10-32 x 1/2")
6	3231300 (†)	1	2	Pin (1000 83)
7	3225400	1		Retainer (1000 33S)
8	3231100 (†)	1	2	Bearing (1000 81)
9	8566059	1		Valve Actuator (1000 30R)
10	3231500 (†)	1	3	Gasket (1000 85)
11	8405290	1		Valve Assembly (1000 27S 34S)
12	8565390	1		Valve Body (1550 10)
13	8566645 (†)	1	3	Gasket (1550 61)
14	8010064	4	4	Socket Head Cap Screw (1/4"-20 x 2-1/2")
15	3225800	1		Valve Bushing (1000 35S)
16	3231200	1		Bushing (1000 82)
17	3167600 (†)	1	3	O-Ring (500 31)
18	8565520	1		Valve (150 23)
19	8011036 (†)	1	3	Valve Washer (1550 W)
20	8566646 (†)	1	3	Gasket (1550 62)
21	8565490	1		Valve Box (1550 20)
22	3128500	2	4	Pin (400 18)
23	8008000	1	1	Socket Head Cap Screw (8-32 x 3/8")
24	8565530	1		Valve Head (1550 24)
25	3224000	1		Bushing (1000 22)
26	8565310	1		Case (1550 2)
27	8565330	1		Handle Base (1550 4)
28	8010014	4	4	Lock Washer - 1/4"
29	8010023	4	4	Socket Head Cap Screw (1/4"-20 x 3/4")
30	3211400	1		Exhaust Extension (750 17 12)
31	3211700	1		Coupling (750 17 C)
32	6400800	1	1	Muffler Assembly (A 1000 61 MF) (includes Ref. 33-36)
33	3228750	1		Grip (1000 61 AB) - not shown
34	3229250	1	1	Baffle Assembly (1000 61 G) - not shown
35	3232500 (†)	1		Deflector (1000 95)
36	3232600 (†)	1	1	Snap Ring (1000 96)
37	4105094	1		Hose Assembly (1/2 2 Ply x 10) - not shown
Wrenches Included with Tool (not shown)				
--	8010144	1		Hex Wrench - 1/16"
--	8010145	1		Hex Wrench - 5/64"
--	8010149	1		Hex Wrench - 5/32"
--	8010150	1		Hex Wrench - 3/16"
--	8010148	1		Hex Wrench - 9/64"
--	8010308	1		Hex Wrench - 3/32"
--	8010147	1		Hex Wrench - 1/8"

(#) Quantity
(X) Recommended Spare Parts
(†) Parts included in 8405588PT Airetool 1550-900 Service Kit

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

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Fax: 248-391-7824

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